Message

From: Barnicoat, Dana [Barnicoat.Dana@epa.gov]
Sent: 12/20/2019 10:25:43 PM
To: Wardell, Christopher [Wardell.Christopher@epa.gov]
CC: Mutter, Andrew [mutter.andrew@epa.gov]; Mylott, Richard [Mylott.Richard@epa.gov]; Partridge, Charles [Partridge.Charles@epa.gov]; Wall, Dan [wall.dan@epa.gov]
Subject: FW: ATSDR communication -- meconium study
Attachments: ATT00001.txt

FYI Only.

From: Williamson, Laura <LWilliamson@mt.gov>
Sent: Friday, December 20, 2019 2:58 PM

Ex. 6 PP Public Involvement Advisory Group

Subject: RE: ATSDR communication -- meconium study

Hello,

ATSDR evaluated the following environmental data in statement #3:
-Metal levels in soil came from Hailer et al 2017 and were compared to EPA regional screening levels.

	Median Butte Soil (Hailer et al 2017) (mg/kg)	EPA Regional Screening Levels (mg/kg)	Soil/Dust ingestion rate (kg/day)	Incidental Soil/Dust Ingestion (mg/day) Hailer Median Data	Incidental Soil/Dust Ingestion (mg/day) EPA RSL	Typical Dietary Intake for Women (mg/day)	RDA for Pregnant Women (mg/day)	Tolerable Upper Intake During Pregnancy (mg/day)	Upper Level in Over the Counter Supplements (mg/day)
Copper	138	3100	0.0001	0.0138	0.31	1.1	1.3	10	15
Manganese	585	23000	0.0001	0.0585	2.3	2.2	2	11	20
Zinc	243	1800	0.0001	0.0243	0.18	9	11	40	50

- Air data were preliminary ambient air monitoring data from the Greeley School. Only quarters 1 and 2 (2019) data were available for review.
- Water data were from the BSB Water Department as reported by MDEQ, June 2000—March 2019.

It should be noted that DPHHS is presently working on a thorough analysis of the preliminary ambient air data. The analysis will also assess exposure levels for special populations such as children. I do not have a specific timeline to offer as to when this will be completed but it is a high priority for DPHHS. We aim to have this completed in early 2020.

Laura

From: Williamson, Laura
Sent: Wednesday, December 18, 2019 10:29 AM

Ex. 6 PP Public Involvement Advisory Group

Subject: RE: ATSDR communication -- meconium study

Hello,

DPHHS asked ATSDR to provide the references for the data evaluated in statement #3. ATSDR will get us that information by Friday. I will share their response with the group.

Laura

From: Rosalind A. Schoof <rschoof@ramboll.com>
Sent: Wednesday, December 18, 2019 10:04 AM

Ex. 6 PP Public Involvement Advisory Group

Subject: [EXTERNAL] RE: ATSDR communication -- meconium study

Hi Dave,
I do agree with you that Butte is likely to have soil levels of copper, zinc and manganese higher than typical urban levels. And I agree it is not clear on what basis ATSDR made their statement. I think you are also correct that there could be chronic low level exposures from environmental sources in Butte that are higher than general population exposures from soil and airborne dust. Nevertheless, even with higher low level exposures from soil and dust, intakes of these metals in Butte would still be a very small fraction of our normal intake from diet, vitamins and medications. I wish that ATSDR had made that point instead of the assertions they did make. There is no way soil and airborne dust could account for the difference in meconium concentrations between Butte and Columbia.

Furthermore, based on EPA's analysis, the levels in meconium from Butte do not appear to be higher than normal ranges, and EPA has supported their analysis with the table Charlie showed on our call last week. Despite being provided with that table, the authors of the meconium paper are still claiming that Butte values are elevated. These claims need to be documented and supported with a summary table showing the literature values in comparison with the Butte values so that we can understand the basis for the discrepancy between EPA's analysis and the claims of the McDermott et al. authors. Only when we have evidence that the Butte levels are outside of normal ranges do we have a basis for trying to find a source. If the meconium levels are not elevated, then air concentration data and soil data will be irrelevant.

Regards,
Roz

Rosalind A. Schoof

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From: Hutchins, David <DHutchins@mtech.edu>
Sent: Tuesday, December 17, 2019 7:21 AM

Ex. 6 PP Public Involvement Advisory Group

Subject: Re: ATSDR communication -- meconium study

All,
My question remains, how did the ATSDR arrive at the conclusions: "There appear to be no elevated levels of manganese, copper and zinc in the Butte environment that would result in an elevated concentration in the meconium of newborns." and "The levels...in Butte soil and air are within range of typical urban areas ". From everything I know about this place, I think these statements are hard to back up. Do they have evidence that I am unaware of?

The air study is relevant, even if it does not have the potential to entirely explain the difference. What the meconium pilot study suggested was possible exposure. Why would we discount any possible pathways before they are investigated? Despite the ATSDR statement, this valley does have elevated metals in the environment, and chronic low-level exposure from of multitude of sources seems plausible to me.

David

From: Rosalind A. Schoof <rschoof@ramboll.com>
Sent: Monday, December 16, 2019 3:33 PM

Ex. 6 PP Public Involvement Advisory Group

Subject: RE: ATSDR communication -- meconium study

All,
In terms of what can be expected from the air monitoring data, I assume there will be measurable levels of manganese, copper and zinc in the air.
The key question is **"Could levels of manganese, copper and zinc in the air in Butte be high enough to account for a 1,000-fold difference in absorbed doses in pregnant women?" The answer to that question is a resounding "no" just on a theoretical basis.** As required nutrients, the intake of these three metals from diet and prenatal vitamins is already quite high. (And for zinc, many of us also get large doses by taking zinc to fend off colds.) That means a thousand-fold increase will be a huge amount.

There are limits to how much of a particulate load people can inhale and Butte's air has not had high enough particulate loads to inhibit breathing. To have a thousand-fold increase in these metals would require inhaling enough dust to damage the lungs.

Dr. Hailer mentioned that large inhaled particles will mostly be passed up from the lungs, then swallowed into the gut. That is correct, but I cannot conceive of any way that a thousand-fold higher exposure can occur this way. The oral absorption of these metals, which are essential nutrients, is controlled by the body. For example, zinc absorption is saturable, meaning absorption plateaus at a certain dose when the body has enough for nutritional needs and does not further increase.

So if particles containing these metals are inhaled and then passed to the gut, there is no way a thousand-fold higher dose could be absorbed. Any claims that air in Butte might be responsible for a thousand-fold increase in exposure are scientifically insupportable and irresponsible (regardless of what the air concentration data might be).

Roz

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From: Sullivan, Karen <ksullivan@bsb.mt.gov>
Sent: Monday, December 16, 2019 1:47 PM

Ex. 6 PP Public Involvement Advisory Group

Ex. 6 PP Public Involvement Advisory Group

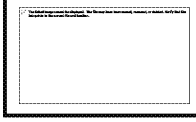
Subject: RE: ATSDR communication -- meconium study

David: I am hearing that some results from the air monitoring study should be available right after the first of the year; I would anticipate a well-rounded release of those data, including to the task group that you are facilitating – if I hear that that timeline is changed in any way, I'll let the Health Study Work Group know – Karen Sullivan

From: Hutchins, David <DHutchins@mtech.edu>
Sent: Friday, December 13, 2019 1:39 PM

Ex. 6 PP Public Involvement Advisory Group

Subject: Re: ATSDR communication -- meconium study



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Hi Karen,
Thank you for sharing. I am wondering how they arrived at the conclusions in item number 3, since there are not references to support them. Would you be able to share the preliminary results from the current air monitoring study being conducted by BSBHD and Bison Engineering? If the speciation of those larger fraction of particulate matter do not reveal manganese, copper, and zinc, those finding would sure support their assertion.
Thank you,
David

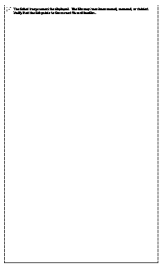
From: Sullivan, Karen <ksullivan@bsb.mt.gov>
Sent: Friday, December 13, 2019 12:39 PM

Ex. 6 PP Public Involvement Advisory Group

Ex. 6 PP Public Involvement Advisory Group

Subject: ATSDR communication -- meconium study

Hello: Along with the state's lead epidemiologist, Laura Williamson, I received this communication this morning from ATSDR. I have been asked to distribute this widely, and am doing so – thank you – Karen Sullivan



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